

10

15

20

A layer-structured MPLS path is set up in a short time by using a minimum number of control messages. A relay apparatus acting as the start point of the highest-layer L2 path creates a label request message specifying the intermediate-point and end-point relay apparatuses for all the paths of all the layers, and transmits it to the end-point relay apparatus of the L2 path. At a relay apparatus permitted to use an already established L1 path, instead of requesting a label of the L1 path, the label of the already established path is inserted in the label request message. In response to the label request message, a label mapping message is transmitted and transferred to the start-point relay apparatus. With this message, each node determines the labels associated with it and transfers them to its adjacent relay apparatus.